MARINE REVIEW.

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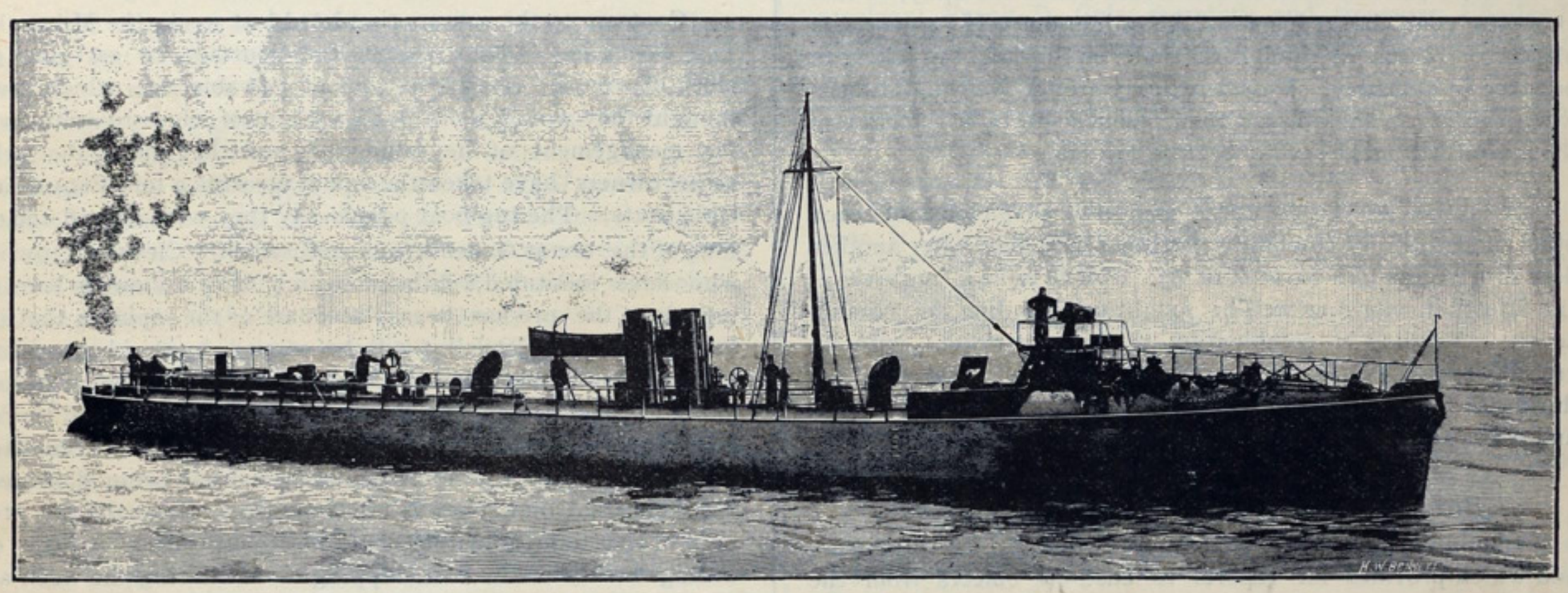
Great Britain's Latest Vessels of War.

Over thirty vessels of a type similar to that shown in the engraving on this page have been ordered by the British government from several ship building companies throughout the country at a cost of £33,500 to £39,000 each. They are called torpedo boat destroyers, and the Havock, the first of them to be built, attained a mean speed of 26.783 knots, or nearly 31 miles, in four runs on the measured mile.

The Havock is 180 feet long by 18 feet 6 inches beam. She is a single-deck vessel, in form greatly resembling the first-class sea-going torpedo boats built by Messrs. Yarrow & Co., who are also the constructors of the Havock. Forward there is a long turtle deck, well elevated above the water line, which covers in a lofty forecastle, in which the larger number of the crew are berthed. At the after end of this turtle deck is the usual conning tower with steering wheel. The next compartment is filled up with berths, and abaft a separate compartment is devoted to the cook, and contains also fresh water tanks and two more berths. From the galley to the engine room are the two boiler compartments, containing each a locomotive boiler with copper firebox, working up to 180 pounds per square inch, and capable of generating steam sufficient for the develo| ment of 1,800 horse power. The engine room contains two sets of inverted triple expansion engines, capable of developing collectively, without undue forcing, 3,500 horse power, each set of engines driving a screw. In the same compartment are two surface condensers, two centrifugal pumps and engines for driving them, fan engines, steam bilge pump, evaporator and distiller, air compressing engines, and engine dynamo for the search light; and lastly, the engine for actuating the rudder, which can be controlled from either the forward or after steering station. Abaft the engine room are two cabins for the engine room artificers; then comes the officers' mess-room with its pantry, and last of all, quite at the stern, a large store space. The armament consists of an 18-inch bow torpedo tube for firing direct ahead; also two 18-inch swivel torpedo tubes for side firing, which are placed on a turntable aft. On the forward conning tower, well elevated above the water line, is a 12-pounder, quick-firing gun, which practically has an all-round range. There are also two 6-pounder quick-firing guns, one at each side, and finally a 6-pounder placed on a high stand near the stern, having a very extensive range of fire. The depth of the boat being so much greater than is necessary for head-room, admits of a water-tight flat, or lower deck; this has been built in the boat just above the water line, extending from the stem to the forward stokehold, adding greatly to the safety of the craft in case of collision, and below, under the floors of the cabins, are spaces for magazines and stores. The coal-carrying capacity of the Havock is 60 tons, and the supply is placed in bunkers along each side of the boiler compartments, and is estimated to be sufficient for a run of 4,000 miles at a 10-knot speed. The complement of officers and men to man this vessel is forty-two, for whom there is sufficient accommodation, but they are rather closely packed.



TORPEDO BOAT DESTROYER HAVOCK—FIRST OF THIRTY WAR VESSELS OF A NEW TYPE NOW BEING CONSTRUCTED FOR THE BRITISH GOVERNMENT—SPEED ON TRIAL, 26.783 KNOTS.

A 20-Foot Channel Scheme.

The Winthrop Land Association is the name of a corporation having offices at No. 149 La Salle street, Chicago, and organized with a view to taking advantage of the increase in lake commerce that will drift to Chicago through the deepening of connecting channels to 20 feet. This corporation proposes to develop a large tract of land on Lake Michigan, just south of the Wisconsin state line, and within a short distance, of course, of the city of Chicago. The plan is to eventually secure a deep harbor at the new town site, and then run a belt line railway from the harbor around Chicago, connecting with all of the railways centering in the great western metropolis. The whole scheme is, of course, based largely on the assumption that the lake business that should go to Chicago proper will be diverted to the new harbor, on account of the great cost of terminal facilities in Chicago and the disadvantages connected with the problem of suiting Chicago harbor to the 20-foot channel improvement. As yet there is no assurance of capital back of the scheme. All that has been learned about it is taken from circulars sent out by a Chicago real estate firm. One great drawback to success with such a project is the probability that Chicago will in time develop a big outer harbor.

Tips From the Man on the Dock.

"Vessel owners have ascertained that there is a God in Israel," said Rumsey the other day. Vessels have been turned out by dozens and by litters to meet the demands of business at high tide. But now the rooster is fast displacing the old flag as a national emblem and treasonable tariff tricksters traitorously destroying trade. The general business of the country, out of which transportation must come, is badly humped. It was run ashore in '93 by the crew on watch. With the animus of the old pirates they seem averse to saving it; and judging from their wrecking incapacity, it must soon come to a total loss. O ye Gods! How long will such idiotic policy continue? Give us another crew to save the wreck of stranded business and bring back operative prosperity. A crew that will light the fires in the furnaces and mills; put in motion resting wheels of factories; give re-employment to idle labor, replenishing the poor man's wasted larder, the fire on his hearth, the scanty clothing of his children. Then will our vessel interests have come to the bat for another successful inning.

* * *

If it shall prove true that the money made by vessels the coming season is the amount of expenses that will be saved, then it is obvious that the movement to lay all the tonnage by for a portion of the time is well conceived. But already the shadow of its failure seems to appear. If there is to be a lack of business for employment of the entire tonnage the whole season, there must be waste time in some way. The movement of the Lake Carriers' Association would bunch the delay, so that expenses could be reduced to the minimum. If "go as you please" or "catch as catch can" shall be the rule, but little can be saved in expenses. Vessels will lay around waiting for loads with their crews aboard, and their balance sheets at the close of the season will make several seasick owners.

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It is the old story—vessel men are suspicious of each other and will not combine. Perhaps they may after another dose of business like we took in '93. If it is to be a "survival of the fittest" it might as well be fought on that line the coming season. Without a combination it must so result; with increased expenses only debts accrue. We must fight expenses during the present regime until a new pilot comes to the helm, and we can best fight them by combination.

Bills Affecting the Management of Vessels.

In addition to the bill referred to editorially in this issue, and which provides for reports to customs' officers from the masters of all vessels, at all times, when entering or leaving lake ports,—whether such ports are within the same district or not—a number of other measures of a marine nature have been introduced in congress recently. Representative W. R. Ellis of Oregon is supporting a bill, No. 4,426, which provides that "the hull and boiler of every ferry boat, canal boat, yacht or other small craft of like character propelled by steam, gas, fluid, naphtha or motor" shall be placed under the supervision of the steamboat inspection service. Only vessels under 10 tons burden that do not carry passengers or freight for hire are exempted, and it is provided further that all vessels coming under the provisions of the act must carry a licensed engineer and a licensed pilot.

The bill for a semi-submerged torpedo boat, which Mr. Lockwood of New York introduced by request several days ago, authorizes the secretary of war to contract with the John P. Holland Torpedo Boat Company of New York for such a boat under the patents and designs of John P. Holland. The price, dimensions, etc., of the boat shall be to the satisfaction of the secretary.

Congressman E. F. Loud of San Francisco would have second, third and fourth officers of seagoing passenger steamers, who are engaged or employed as watch officers, licensed and classified and in all other respects subject to all the applicable provisions of law respecting licensed officers of steam vessels. He has introduced a bill with this end in view.

A half dozen measures relative to the employment, care, discharge, etc., of seamen are being pushed by Mr. J. G. Maguire of California. They were printed by title in the last issue of the review, and have reference mainly to seamen engaged in salt water service.

Another Method of Sending a Line Ashore.

W. H. Littleton, who was for a number of years engaged in wrecking work on the lakes, has written the Scientific American about methods of sending a line ashore from a stranded vessel. He says: "During my time on the lakes we called such a line a running line. After trying buoys, boards, rafts, etc., I adopted the plan of a barrel, with a reel inside, leaded inside on the corner, and a grapple on the outside in the shape of a one-fluked anchor, that was to catch on to prevent the surf from carrying the barrel back when it struck shoal water. The lead I put in heavy enough to keep the barrel partially on end, and on the bottom and side of the barrel that the grapple is attached to. The device is so cheap and simple that any sailor can make one for his vessel with little cost, and if kept aboard at all times in readiness for use it may be relied on to help him out of a bad mess."

That Pewabic Ore Contract.

Contrary to the rumors circulated last week, the Milwaukee Tug Boat Line failed to secure the contract for carrying the block of 100,000 or 150,000 tons of Pewabic ore, which it was thought they would control, on account of close relations with the management of the mine, and now they claim that other vessel owners have taken the ore at 60 cents a ton, Escanaba to Ohio ports. The tug boat people say they were offered 120,000 tons of the ore at 60 cents and refused it. Cleveland owners who have instituted a dilligent search with a view to learning ing where the ore has been placed, are of the opinion that if it has been covered at all it will be carried by the boats of the Inter-Ocean Transportation Company of Milwaukee. No sales of ore for next season's delivery are as yet reported, and there is no talk of other freight contracts. Vessel owners entertain little hope, in fact, of much contract business being done, as it is certain that on a basis of 60 cents from Escanaba the great bulk of the tonnage will be held for going rates. A little encouragement was found in shipping circles during the week as a result of an advance to 3 cents in the Chicago rate for storage of corn and delivery at Buffalo in the spring.

The New Lake Register.

William W. Bates is actively at work on the lake register which the American Shipmasters' Association proposes to bring out shortly. The register will have names of all sail vessels above 30 tons net, and of all steam vessels above 10 tons net. It will be so full of names, it is claimed, that the old register will seem greatly deficient. Captains' names will appear under the names of their vessels. It will be bound separate and distinct from the Record of American and Foreign Shipping, and contain the rules for building, inspecting, classing, &c.

A Low Figure on Triple Expansion Engines.

Accoading to their bid with the Detroit municipal lighting commission, S. F. Hodge & Co. of Detroit will build five triple expansion engines of 360 horse power each for $20,000. The price is undoubtedly the lowest ever made on machinery of this kind in this part of the country. There were nine regular proposals submitted,the highest of which was $37,500 and the lowest, excepting that of S. F. Hodge & Co., $32,460.

A Fast River Boat.

C. McElroy of St. Clair, Mich., and associates, will build a fast passenger steamer, 170 feet long, for the Detroit-Port Huron trade, to be ready June 1. The boat will carry passengers exclusively, and is expected to attain an average speed of 20 to 22 miles an hour. The Frontier Iron Works of Detroit will furnish the engines, which will be quadruple expansion, 15, 22½, 30 and 42 inches diameter by 18 inches stroke. They will run at a sustained speed of 300 revolutions a minute, and will work under a boiler pressure of 200 pounds. The first three cylinders will be fitted with piston valves operated by Joy valve gear, the fourth, or low pressure cylinder, having a treble-ported slide valve. Weight is to be reduced to the minimum. All pumps will be independent. The condenser will be of the Dean (Indianapolis) make, this form and make of condenser being now used by the largest and fastest steamers on the lakes as well as the smallest. If the boat does not make the speed looked for, it is hardly necessary to say that it will not be the fault of the engine builders.

Although the contract for the wooden hull for this boat is not as yet fully settled, it will probably be built by Alex. Anderson of Marine City. Mr. McElroy has sold the steamer Mary, which he has operated on the route between Algonac and Port Huron for twelve years, to Capt. Sam. Burnham, Spain Pierce and Dr. Moore of Algonac for $25,000. The new owners will continue to operate the Mary on the Algonac-Port Huron route.

Engines and Boilers of the North West.

At the ship yard of the Globe Iron Works Company, Cleveland, the first battery of ten water tube boilers is being put in place on the Northern Line passenger steamer Northwest. The second battery of eight of the boilers is being removed from the shops to the ship, and work on the third battery of ten is well advanced. The work ot placing the double sets of quadruple expansion engines is so far advanced that the machinery would, at first glance, seem ready for steam, but on account of the great amount of detail requiring attention in both engines and boilers, it is not probable that steam will be gotten up until about April 1, although the boat is to be delivered in Buffalo early in April. The construction of both engines and boilers for the second boat will, of course, progress rapidly when it is decided to push it, but in any event the second boat will be very late in coming out next season, if she is placed in service at all.

Sameness in Vessels' Names.

The commissioner of navigations has authority to change the name of any vessel, subject of course to certain regulations. If congress would give him authority to prevent any new vessel desiring registration or enrollment from bearing the name of any other vessel already on the list it would be a great relief. If vessel owners would remember that their boats have, as a rule, a larger sphere of action than an indivual, and that, therefore, the vessel's name is a distinguishing mark in a wider circle, they would use more discrimination in naming them. It can not be such a difficult matter to do this. And while sentiment or patriotism may impel one to name his own ship, either the Only Son, Mary Sophia, America, or the Ocean's Pride, yet so many are actuated by the same motives to select the same names that the result is embarrassing to those other people who also are interested in the vessel. Sameness in vessel nomenclature is undesirable.—Maritime Register.

Detroit Transportation Companies.

In accordance with Michigan law the lake transportation companies of Detroit elected directors and officers Tuesday. Following is the list:

Detroit & Cleveland Steam Navigation Company—President, James McMillan; vice-president and treasurer, Hugh McMillan; secretary and general manager, David Carter; directors, the above with W. C. McMillan and Geo. Hendrie.

Hamtramck Transportation Company—President, Hugh McMillan; vice-president, W. C. McMillan; general manager, J. W. Millen; secretary and treasurer, W. K. Anderson; directors, the above and James McMillan.

Duluth and Atlantic Transportation Company—President, James McMillan; vice-president, Hugh McMillan; general manager, James W. Millen; secretary, W. C. McMillan; treasurer, W. K. Anderson; directors, the above.

Detroit Transportation Company—President, James McMillan; vice-president, Hugh McMillan; general manager, James W. Millen; secretary, W. C. McMillan; treasurer, W. K. Anderson; directors, the above.

Interlake Transportation Company—President, P. J. Ralph; vice-president, C. D. Waterman; general manager, secretary and treasurer, H. C. Ralph; directors, the above with L. R. Burt and T. S. Christie.

Percheron Steam Navigation Company—President, Thomas W. Palmer; vice-president and treasurer, Wm. Livingstone, jr.; secretary, W. A. Livingstone; directors, the above.

Michigan Navigation Company—President, Charles Kellogg; vice-president, T. W. Palmer; general manager, Wm. Livingstone, jr.; secretary, W. A. Livingstone; directors, the above.

Farwell Transportation Company—President, Jesse H. Farwell; vice-president and treasurer, George Farwell; secretary, Jerry Farwell; directors, the above with Mrs. Emma J. Farwell.

Star Line—President and general manager, A. R. Lee; vice-president, Frank D. Cole; secretary and treasurer, Charles F. Bielman. The same, with Robert Maxwell and Gen. G. S. Wormer, directors.

Red Star Line—President, A. A. Paaker; vice-president, John Pridgeon, jr.; secretary, W. Howie Muir; treasurer, B. W. Parker; general manager, James W. Millen,

Pridgeon Transportation Company—President, John Pridgeon, jr.; vice-president, John S Quinn; treasurer, B. W. Parker; secretary and manager, A. A. Parker; directors, the above with A. R. Munger.

Peninsular Transit Company—President, A. A. Parker; vice president, W. H. Oades; treasurer, Henry S. Hodge; secretary, B. W. Parker; directors, the above with A. R. Munger.

Buffalo and Duluth Transportation Company—President, James W. Millen; vice president, W. C. McMillan; secretary, B. W. Parker; treasurer and manager, A. A. Parker. These, with W. K. Anderson and T. F. Newberry, are the directors.

Swain Wrecking Campany—President, E. M. Peck; vice president, John S. Quinn; treasurer, James W. Millen; secretary and manager, A. A. Parker. These, with Martin Swain, are the directors.

Peninsular Transportation Company—President, Hugh W. Dyar; vice president, John Oades; treasurer, Harry S. Hodge; secretary and manager, A. A. Parker. These, with W. H. Oades, are the board of directors.

Parker Transportation Company—President and manager, A. A. Parker; vice president, A. R. Munger; secretary, B. W. Parker; treasurer, Hugh W. Dyar. These, with F. B. Gaylord. are the board of directors.

Crescent Transportation Company—At the annual meeting of this company only directors were elected. Another meeting will be held for the election of officers. The directors are: W. H. Stevens, John M. Nicol, Harry S. Hodge, W. H. Irvine, David Wallace and W. T. Stevens.

Northwestern Transportation Company—President, treasurer and general manager, E. M. Peck; vice president, Harvey H. Brown; secretary, L. C. Waldo. The above named with Jas. Findlater and E. T. Peck constitute the board of directors.

J. Emory Owen Transportation Company—President, J. F. Owen; vice president and treasurer, W. J. Gray; secretary, J. C. Johnson.

Hope Transportation Company—President, Thomas S. Christie; secretary, Thomas K. Christie; treasurer, W. R. Stafford. These, with John Francomb, C. D. Hayward and P. H. Monaghan, are the directors.

Proposed Ship-Canals in the United States.

The Canadians, who have shown more foresight and enterprise than we on the American side, have now nearly completed their series of enlargements of old canals and new undertakings, including the channel on Canadian soil at Sault Ste. Marie, which will give Canada exclusive control of an uninterrupted water passage 14 feet deep from the head of Lake Superior to deep water at the mouth of the St. Lawrence. This channel will suffice for a large class of lake steamers,and will also be available for small and medium-sized ocean-going freight ships. Our own government is providing a satisfactory deep water passage from Duluth to Buffalo, but nothing has been done to commit the country to a maritime passage connecting Lake Erie with the deep channel of the Hudson river. A ship-canal along this general course would cost a large amount of money, but it would pay abundantly for the investment. The United States government, which could probably borrow money for such a purpose at 2½ per cent., and which through its trained engineers could construct the work without any waste or extravagance, ought in the early future to consider seriously the undertaking. Meanwhile, congress would do well to make a thorough inquiry into the cost and advantages of such a ship-canal. In his recent message to the New York legislature, Governor Flower pronounces against the ship-canal on the score of its great cost. But the governor happens to have his whole mind wrapped up in certain improvements of a limited sort to the Erie canal as it now exists. His principal hobby is the operation of canal boats by electricity, a trolley wire being stretched along the towpath. The competent critics are of the opinion that Governor Flower is quite too sanguine as to the results that would follow a substitution of the trolley for the tow-path mule. The banks of the canal would not permit a much greater speed than that which is now attained, and the saving of expense would not be material enough to accomplish revolutionary results. It may easily be believed that the trolley along the Erie canal would be of sufficient advantage to justify its construction and operation; but to dismiss as hopelessly unfeasible the plan of a deep water channel across New York, and then to fasten one's hopes for the future upon the mere change from one propelling power to another for ordinary canal boats, is to look at the whole subject through the wrong end of the telescope. This country will have fallen behind old Europe in enterprise if it does not adopt the plan of a ship-canal from the great lakes to the sea, make the Hennepin canal connecting Lake Michigan and the Mississippi river a splendid success, cut the long desired Delaware and Maryland ship-canal, undertake the proposed Florida canal, the advantages of which have been so long recognized, and in short, commit itself unreservedly to the policy of constructing all great waterways which the demands of commerce show to be needful and feasible.—Review of Reviews.

Great Ship-Canal Projects in Europe.

A writer in the Review of Reviews for February discusses various European ship-canal schemes. The Manchester canal, recently completed, is, of course, considered of first importance. The next considerable scheme for adding a great inland city to the list of seaports is the Brussels ship-canal project. Brussels already has a small channel for ordinary canal boats which makes its way to the sea, and it is proposed to utilize this passage, transforming it into a veritable waterway for ocean-going ships. The present plan does not contemplate a depth great enough for vessels of the first rank, but it is estimated that an expenditure of some $10,000,000 would complete the system in such a manner as to give a uniform depth of 22 feet, which would admit vessels of somewhat more than 2,000 tons. The Belgian government has already made a subsidy appropriation towards the project, and has offered to take a considerable part of the stock of the canal company, so that the plan may be considered as upon a practically assured basis.

It is not generally known here in America, perhaps, that for some years the most serious engineering investigations have been in progress in the interest of a deep water passage from Paris to the sea. It is to be regretted that Count Ferdinand de Lesseps, who by the way has lived on into the year 1894, had not devoted his talents to the construction of waterways at home rather than to the hopeless Panama project. Marvelous things could have been done for France with the two thousand million francs, more or less, of honest French money that were squandered by the Panama company. With the help of the River Seine it is now considered perfectly feasible from the engineering point of view, and also reasonably safe on the financial side, to enter in the early future upon the dredging of a deep water passage from the French capital to the channel coast at Havre.

Furthermore, the Paris project of direct navigable communication with the sea is not the only ship-canal scheme that is now in the minds of the French people. A great canal from Bordeaux on the Atlantic coast across the narrow neck north of the Pyrennes to Narbonne on the Mediterranean coast is now a project definitely entertained. A bill for the construction of this maritime passage was introduced in the French chamber last spring, when it was explained that the waterway would be 325 miles long, that it would vary in width from 120 feet to some 200 feet or more, and that it would have a minimum uniform depth of 27 feet. Large money prizes were offered by the projectors of the enterprise to the French engineers for detailed plans, which were to be submitted by Jan. 1, 1894. It is to be expected that a year or two longer may be required for the perfection of the preliminaries, but sooner or later France will undoubtedly build this canal. A glance at the map of Europe will show its great significance and commercial value. From the strategic point of view, France now labors under the difficulty of having no water-course of her own by which her fleet may pass from her Mediterranean to her Atlantic ports. Her ships are bound to pass the bristling fortress of Gibralter, and in case of a war with England this would result in great embarrassment. Moreover, French coasting trade is now compelled to make the enormous detour around the whole of the Spanish peninsula in passing from ths Mediterranean to the Atlantic seaboard. The vast British commerce with India, Australia and the Orient in general that now passes through the Straits of Gibralter on the way to and from the Suez canal would save much time and much expense in patronizing the Bordeaux-Narbonne channel. An improvement so advantageous to France from every point of view is not likely to be long neglected, especially in view of the present military situation on the continent. It mav easily be imagined that the clear-headed Frenchman who thinks of the money wasted on Panama, a part of which would have sufficed to give France this magnificent commercial and strategic pahsage from the Mediterranean to the Atlantic, feels his blood boil with indignation and wrath.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on Feb. 3, 1894:

	Wheat, bu.	Corn, bu.
Chicago	20,720,000	4,418,000
Duluth	10,097,000	128,000
Milwaukee	871,000	.....
Detroit	1,644,000	19,000
Toledo	2,817,000	1,152,000
Buffalo	2,237,000	595,000
Total	38,386,000	6,312,000

At the points named there is a net increase for the week of 216,000 bushels of wheat and 676,000 bushels of corn.

Since the REVIEW distributed on the lakes, a few weeks ago, the books containing proceedings of the marine and naval branch of the engineering congress, held in Chicago in August last, we have received orders for extra copies of the work from Frank E. Kirby of the Detroit Dry Dock Company, President Goodrich of the Goodrich Transportation Company and other leading builders and owners. Past Assistant Engineer McFarland, U. S. Navy, who undertook, without renumeration of any kind,the great labor of preparing for publication the proceedings of this branch of the congress, is receiving many compliments in the newspapers of Great Britain upon the success of the work.

Illustrated Patent Record.

SELECTED ABSTRACTS OF SPECIFICATIONS OF A MARINE NATURE—FROM LATEST PATENT OFFICE REPORTS.

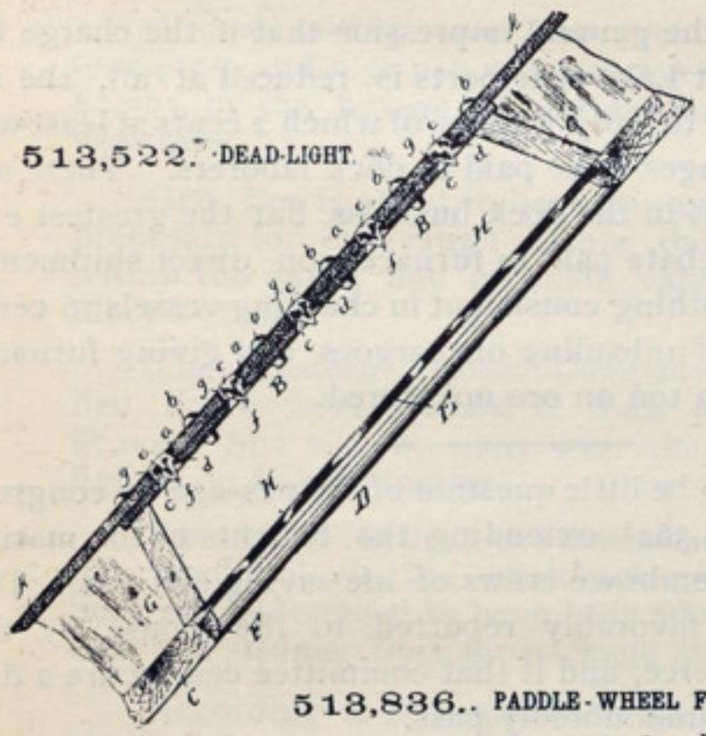
513,522. DEAD-LIGHT. Alexander McDougall, Duluth, Minn., assignor to the American Steel Barge Company, New York, N. Y., and West Superior, Wis. Filed Oct. 22, 1892. Serial No. 449,692. (No model.)

In an improved dead-light for vessels, the combination of the plate A, having openings therein; the plate B, secured thereto by means of rivets and provided with openings corresponding with openings in the plate A, but of smaller diameter at their upper ends, so as to form shoulders *d*, dead-lights resting on said shoulders and held in place by cement; the wall of wainscoting C, of the vessel, and the glass pane E, in said wainscoting beneath the dead-lights.

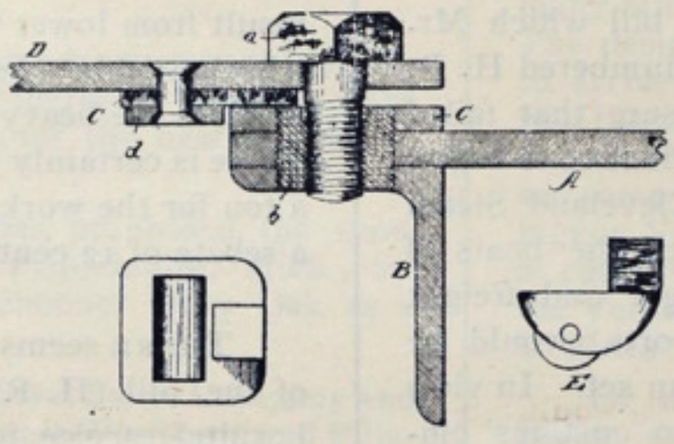
513.523. SHIP'S HATCH. Alexander McDougall, Duluth, Minn., assignor to the American Steel Barge Company, New York, N. Y., and West Superior, Wis. Filed Oct. 22, 1892. Serial No. 449,690. (No model.)

Claim: In a vessel, a hatch-way cut in the plating A, thereof; an angle iron B, around said hatch-way and below the same; a strip C around said hatch-way and above the same; bushings *b*, tapped through said plating A, angle iron B, and strip C; and a hatch D, having a packing *c*, secured to the under side thereof all around; openings in said hatch between said packing and the edges thereof; and screw bolts *a* in said openings, and engaging with said bushings.

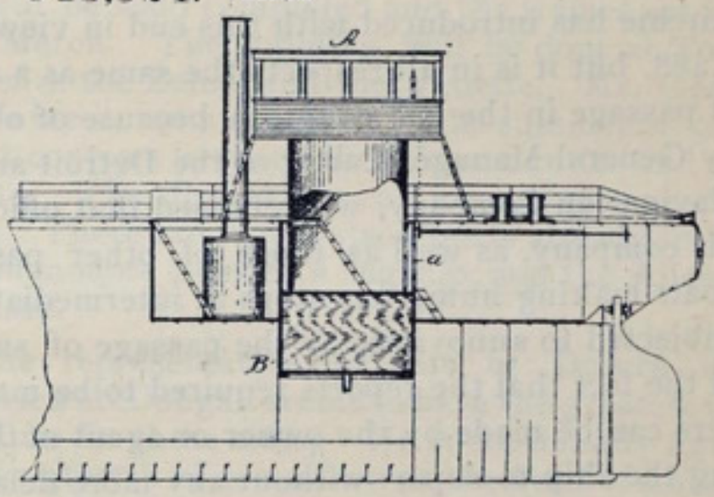
513,522. DEAD-LIGHT.



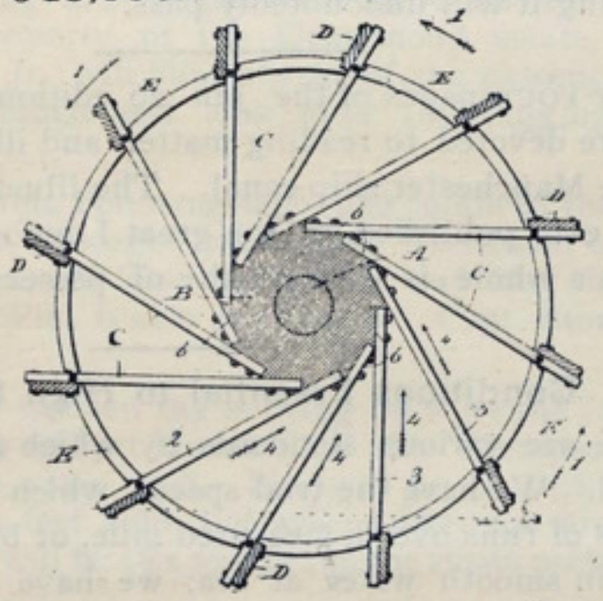
513,523. SHIP'S HATCH.



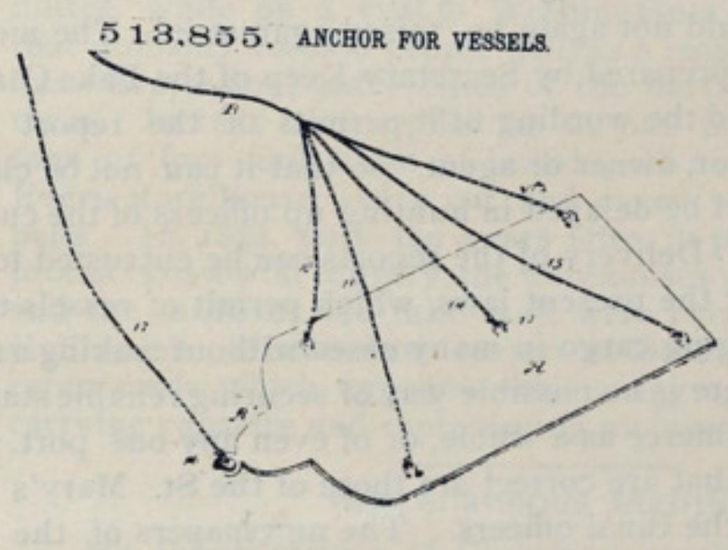
513,524. VESSEL.



513,836.. PADDLE-WHEEL FOR STEAMBOATS.



513,855. ANCHOR FOR VESSELS.



513,524. Alexander McDougall, Duluth, Minn., assignor to the American Steel Barge Company, New York, N. Y., and West Superior, Wis. Filed Nov. 4, 1892. Serial No. 450,992. (No model.)

Claim: The combination with a vessel provided with a casing therein, of a turret movable up and down within said casing, and carrying a working deck or cabin, and co-incident openings or doors in said casing and said turret.

513,836. PADDLE-WHEEL FOR STEAMBOATS. Porter B. Speer, Muscatine, Iowa. Filed Jan. 11. 1893. Serial No, 457,996. (No model.)

Claim: A paddle-wheel having a hub secured to the drive shaft formed with faceted ends; pairs of spokes *c c* having their inner ends secured to facets *b* on the opposite ends of the hub; paddles connecting the outer ends of the spokes in each pair and rigidly secured directly thereto flatwise, and the brace hoops attached to the spokes at each side of the wheel.

513,855. ANCHOR FOR VESSELS. Ruben Zertuche, Saltillo, Mexico. Filed Feb. 27, 1893. Serial No. 463,897. (No model.)

Claim: An anchor consisting of a single flat metal plate A, formed at one end with an integral extension A′, the table B having a series of branches connected with the plate as shown, and another cable connected with the said integral extension.

Annual Meeting of Canadian Vessel Owners.

Special Correspondence to the MARINE REVIEW.

TORONTO, ONT., Feb. 8.—At the annual meeting of the Canadian Marine Association, held here on Thursday, the following officers were elected: President, W. A. Geddes of Toronto; first vice-president, Thomas Marks of Port Arthur; second vice-president, R. O. McKay of Hamilton; secretary, treasurer, Capt. J. V. Trowell of Toronto; executive committee, Messrs. J. B. Miller of Parry Sound, S. Neelon of St. Catherines, G. E. Jaques of Montreal, Capts. Crangle and Sylvester of Toronto, Capt. John Gaskin of Kingstyn, Capt. J. D. Fairgrieve and C. Myles of Hamilton. Among others present at the meeeting were Captains Ewart and Tripp and Messrs. A. M. Smith, J. H. G. Haggarty, W. W. Keighley and A. R. Christie of Toronto, D. G. Thompson of Montreal, A. D. McKay of Hamilton and Capt. Corson of Brighton.

A series of resolutions adopted at the meeting asked for a reduction in the charge of 20 cents per gross ton in force at the government dry dock at Kingston. This rate is higher than the rate charged at other Canadian docks and it also exceeds the charges made by docks of the United States in lake cities. The resolutions also make the claim "that the law fixing a high rate of duty on repairs upon Canadian vessels in American ports is most unjust, and bears very hardly on the lake marine. Under the present state of affairs a vessel may be built in the United States, brought into Canada and registered as a Canadian vessel, with a duty of only 10 per cent., while, should a Canadian vessel through necessity repair in an American port, the duty on such repairs is 25 per cent. Therefore it is resolved that this association urge upon the dominion government, that the marine interests should be enabled to make the necessary repairs in case of disaster, so as to place the vessel in a seaworthy condition, at the first available port, and that no duty should be imposed upon such repairs." In view of the prospects of the free admission of Canadian coal to the United States, through the operation of the Wilson bill, the association urges the dominion government to reciprocate in this matter, as, in the opinion of the association, such action would be of decided benefit to the manufacturing and marine interests of both countries. The government is again asked to build a grain elevator at Kingston, and the grain forwarders at that port will be asked to reduce the charges for discharging grain, on the ground that it is against their own interest to keep the tariff of charges above that in force at Buffalo and Erie.

The secretary was instructed to write to the minister of marine, urging the great necessity of a light at the inner end of Burlington piers, and at the same time to draw his attention to the fact that the bell buoy at Niagara river was removed on Nov. 1, and also that no Canadian lights were lighted on Lake Superior on Nov. 30.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 516 Perry-Payne building, Cleveland, O. Chicago office, (branch), No. 726 Phoenix building.

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ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

	St. Mary's Falls Canal.			Suez Canal.		
	1892.	1891.	1890.	1892.	1891.	1890.
No. vessel passages	12,580	10,191	10,557	3,559	4,207	3,389
Ton'ge, net regist'd	10,647,203	8,400,685	8,454,435	7,712,028	8,698,777	6,890,014
Days of navigation..	223	225	228	365	365	365

Entered at Cleveland Post Office as Second-class Mail Matter.

ANOTHER member of congress, Representative B.F. Ritchie of Ohio, Toledo district, has begun an effort to secure a change in the law governing arrival and departure of vessels at lake ports, so that a report will be made to officers of the customs every time a vessel puts into or departs from an American port. A bill which Mr. Ritchie has introduced with this end in view is numbered H. R. 5,488, but it is in all respects the same as a measure that failed of passage in the last congress, because of objections to it begun by General Manager Carter of the Detroit and Cleveland Steam Navigation Company, who claimed that officers of the boats of his company, as well as those of other passenger and freight boats making numerous stops at intermediate ports, would be subjected to annoyance by the passage of such an act. In view of the fact that the reports required to be made to customs' officers can be made by the owner or agent of the vessel, thus allowing the ship to depart without any more delay than at present, it would seem that the slight objections that exist with reference to this bill should not again be raised against it. The measure was originally prepared by Secretary Keep of the Lake Carriers' Association, and the wording of it permits of the report being made by "master, owner or agent," so that it can not be claimed that vessels will be delayed in hunting up officers of the customs in small ports. Delivery of the reports can be entrusted to dock agents. Under the present laws, which permit of vessels taking on and discharging cargo in many cases without making a report of any kind, there is no possible way of securing reliable statistics of the lake commerce as a whole, or of even any one port. The only statistics that are correct are those of the St. Mary's Falls canal, kept by the canal officers. The newspapers of the lakes should give earnest support to this bill, unless the shipping interests bring forward a better method of obtaining the statistics of lake commerce, that are so necessary in connection with all legislative matters.

MR. WILLIAM LIVINGSTONE, Jr., of Detroit is making a strong effort in support of the proposed widening of the Lime-Kilns crossing. This is one of the improvements that was specially recommended at the annual meeting of the Lake Carriers' Association in Detroit last month. Mr. Livingstone has assurance from United States Senator James McMillan and several of the members of congress from Michigan that they will do everything they possibly can to get an appropriation, so that this work can be begun next summer. He has also induced several of the leading owners in Cleveland to write to their representatives in congress regarding the appropriation. The cost of increasing the width of the Lime-Kilns channel, in which the aggregate commerce is greater than that of any other channel on the lakes, is only trifling as compared with the first cost of the work, and the necessity for the improvement was shown on two occasions last season, when lake business was threatened with entire suspension, on account of collisions in the cut.

SECRETARY KEEP'S knowledge of congressional affairs has on many occasions served the Lake Carriers' Association well, and his action, a few days ago, in going before the river and harbor committee with the raft towing question, was another move in the right direction. The river and harbor committee is sure to have a hearing during the present session of congress. Its members have shown a disposition to treat the shipping interests fairly. If this committee will, then, take jurisdiction of the matter, as they have done in the case of obstructions in navigable channels, it will be much easier to have the proposed legislation incorporated in the river and harbor bill, than to depend upon a separate measure, that would very probably be delayed until late in the session and eventually crowded out. Now let the managers of the association see that the river and harbor committee is fully informed as to the relief which the vessel owners ask from the raft towing evil, and secure the passage of the necessary legislation before the opening of another season.

IT seems to be the general impression that if the charge for unloading iron ore at Lake Erie ports is reduced at all, the reduction will amount to only 3 cents, of which 2 cents at least will result from lower wages to be paid to dock laborers. There are wheels within wheels in the dock business, but the greatest evil of all is the heavy rebate paid to furnaces on direct shipments. There is certainly nothing consistent in charging vessels 16 cents a ton for the work of unloading ore cargoes and giving furnaces a rebate of 12 cents a ton on ore not stored.

THERE seems to be little question of the passage by congress of the bill (H. R. 4,364) extending the benefits of the marine hospital service to embrace crews of life saving stations. The measure has been favorably reported to the house by the committee on commerce, and if that committee can secure a day for a hearing it will undoubtedly pass.

FIFTY-FOUR pages of the Jan. 26 edition of Engineering of London are devoted to reading matter and illustrations descriptive of the Manchester ship-canal. The illustrations are among the finest ever published by the great London Journal, and the edition as a whole is well worthy of preservation by any engineer.

Conditions Essential to High Speed.

There are various standards by which the speeds of ships are judged. We have the trial speeds, which may be determined by a series of runs over a measured mile, or by runs over various distances in smooth water at sea; we have runs for a certain length of time in ordinary weather at sea; and finally, we have the average speed which a ship can maintain, year after year, over the whole of her voyages in all seas and all weathers. The last-named is the kind of speed now being taken into account in the building of transatlantic passenger ships. Among the conditions essential to high speed as thus defined, are: (1) Great size of ship; (2) a form suitable for driving easily at high speeds over heavy seas without shipping heavy water, or lifting the propellers sufficiently to cause racing; (3) deep draught of water; (4) steadiness in a seaway; (5) great strength of structure and of machinery; (6) a large proportion of boiler power, so as to enable a full supply of steam for the engines to be easily kept; (7) a full and well-regulated supply of air to the furnaces.—From a paper by Dr. Elger.

Mr. Frank Owen, superintendent of the Ogdensburg Transit Company (Central Vermont Line), says of the statement attributed to him in some of the papers, that a new package freight line would be established by his company: "The Central Vermont Line have not chartered any steamers to my knowledge, nor have I intimated that they have done so."

Around the Lakes.

Capt. David Vance of Milwaukee leaves New York this week for his annual trip to the other side.

It is generally believed that the steel freight steamer to be built at South Chicago will be owned largely by stockholders in the Chicago Ship Building Company.

Capt. Fred. H. Rae, who last season sailed the Cleveland & Buffalo Transit Company's steamer State of New York, will this season command the steamer Susan E. Peck.

Sixteen-foot boilers with shells $1\frac{5}{16}$ inches thick will be constructed for the big freight boat, upon which work was recently begun by the Globe Iron Works Company, Cleveland.

No sales of lumber for next season's delivery have as yet been made at the head of Lake Superior, but winter work is progressing as usual and average full stocks are being put in.

Directors elected at the annual meeting of the Vessel Owners' Towing Company, Cleveland, are: C. E. Grover, M. A. Bradley, Capt. William Kennedy, William Logie and Capt. W. A. Collier.

A small sailing vessel, the yacht Mona of Cleveland, 5.60 tons gross and 5.32 net, was last week given an official number, 92,563, by the bureau of navigation, E. T. Chamberlain, commissioner.

Gen. Poe is about to have printed an advertisement inviting proposals for excavation within the cofferdam, building cribs within the same, and miter sill valves for the new lock at St. Mary's canal.

The Western Transit Company has purchased the scow Ben Brink from Hebard & Sons of Pequaiming, Mich., for $7,000. She will be used with the schooner Gray Oak as a lighter on Lake Superior.

Differences between the American Steel Barge Company and the "Soo" line over the whaleback steamers Washburn and Pillsbury are understood to have been settled. This line has chartered the steamer Dyer for package freight business next season.

According to arrangements made for the management of the vessel property of the Grummond estate, Detroit, S. B. Grummond, Jr., will have charge of the passenger boats, and U. Grant Grummond will look after the tugging and wrecking business.

Capt. Nels Peterson, who had followed the lakes for forty years, died in Chicago last week. The death of Capt. Nicholas Stone, also an old lake navigator, and later harbor master at Sheboygan, Wis., is also announced. Capt. Stone was sixty-five years of age.

Another wooden tug is being built by the Jenks Ship Building Company of Port Huron for C. D. Thompson and James J. Lynn of the same port. She will be 96 feet long, 21½ feet beam and 11 feet hold, and will be fitted for wrecking purposes. The engines will be 16x28x32 and the steam pressure 140 pounds.

Although it was again reported last week that the Cleveland Ship Building Company would put down a keel for a freight boat on their own account, Mr. Robert Wallace says that an offer from outsiders to take half of such a boat might result in work being resumed, but the company will not assume the entire risk under present business conditions.

There will be 17 feet of water over the miter sill in the new dock of the Chicago Ship Building Company at South Chicago, upon the construction of which work is to be resumed at once. The dock will be 425 feet long, 100 feet wide at the top and 80 feet wide at the bottom, with 70 feet width of gate. An increase in length to 475 feet can be secured if it is desired.

Officers and directors of the Cleveland & Buffalo Transit Company elected Tuesday are: President, M. A. Bradley; vice president, George W. Gardner; treasurer, R. C. Moody; secretary and general manager, T. F. Newman; directors, M. A. Bradley, George W. Gardner, R. C. Moody, J. K. Bole, T. F. Newman and Daniel Shirmer.

Chicago marine men have petitioned representatives in congress to secure an appropriation of $25,000 for a board of engineers to survey the Chicago river. When the original survey was made half a century ago the government engineers ran a line along the river on either side and the land was sold down to this line. From that time to this, steady encroachments on the river have been the rule whenever new docks were built. The value of the property thus unlawfully appropriated is estimated at $10,000,000. If the commission is appointed, its first duty will be to go back to the original survey and locate every encroachment.

Directors and officers of the Ship Owners Dry Dock Company elected Tuesday are: Directors, Capt. Thomas Wilson, Capt. George Stone, H. D. Goulder, Valentine Fries, H. D. Coffinberry, J. E. Upson and Robt. Wallace; president, Capt. Thomas Wilson; vice-president, Capt. George Stone; attorney, H. D. Goulder; secretary, treasurer and general manager, George Quayle; assistant manager, August Cold.

James J. Hill of the Great Northern Railway and Northern Steamship Company was in Washington a few days ago, and is said to have called the attention of the president and leading members of congress to the importance of the project of dredging Duluth and Superior harbors to a uniform depth of 20 feet. Capt. McDougall and other leading representatives of shipping interests at the head of the lakes were in Washington at the same time and appeared before the river and harbor committee.

One of the Toronto (Can.) newspapers says that the most important addition to that port's fleet of yachts the coming season will be Mr. George H. Gooderham's 35-footer. G. F. Watson of Glasgow, the famed designer of the Valkyrie, and many other English and Scotch racers, has the design in hand. The design will be soon completed and the frames are expected to arrive in March. The building will be done at Toronto as was the case with the Zelma and the Vedette. Mr. Gooderham has asked for a racer, not a cruiser, and the summer of '94 should see some great contests between the Watson cutter and the Fyfe lugger Vedette. The dimensions call for a deep, powerful boat of cutter type. There are two Watson boats already in Toronto, the Verda, Commodore Boswell's flagship, and the Aileen, Capt. G. Miles' cruiser.

Of all the representative citizens of Duluth and Superior, Capt. Alex McDougall seems to have the greatest faith in a prosperous future for these cities. He is continually figuring on the prospective growth of commerce at the head of Lake Superior. In talking with the members of the river and harbor committee, while on a visit to Washington a few days ago, he said that probably 100,000 people will, as a result of the present business depression, leave cities of the northwest and become farmers. In 1882 he saw piled up at one time in Duluth 10,000 tons of furs and hides of buffalo, elk and other wild animals. Every store house, every car and every vessel was filled with pelts. In 1892, only ten years later, in place of furs and other products of a wild country, the warehouses were filled with wheat, and the railroads and lake craft were carrying the products of civilization. There now centers at Duluth and Superior a carrying trade which engages vessels aggregating 1,000,000 tons carrying capacity and representing an investment of $75,000,000.

Miscellaneous Mention.

Mr. John Corrigan of Cleveland, owner of the big wooden steamer Aurora, is figuring on fitting her for carrying package freight.

Three Russian battleships, two of 10,960 tons displacement and 10,600 horse power each, and one of 8,880 tons displacement and 8,500 horse power, will be launched at St. Petersburg shortly.

Messrs. Geddes, Marks, Thomson and Neelon and Capts. Fairgrieve, Sylvester and Gaskin were appointed, at the meeting of Canadian vessel owners in Toronto last week, to wait upon officers of the government and bring to their attention matters requiring government action that were discussed at the meeting.

The new White Star Line cargo steamer Civic left New York last week on her first voyage eastward with a cargo which included 144,000 bushels of grain, 9,000 bales of cotton, 800 head of cattle, 400 tons of copper and lead, 300 tons of fresh meat, 3,500 sacks of flour, 3,000 boxes of cheese, 2,000 barrels of oil, 600 barrels of paraffine wax, 2,000 bundles of sorted hides, 300 tierces of beef and 500 bales of hay. Still the Civic is not the largest cargo steamer afloat. The new American Line ships Southwark and Kensington, just completed in Scotland, are somewhat larger than this latest addition to the White Star fleet.

Subscribers will avoid danger of mistakes by giving the old as well as the new address when a change is desired.

In General.

Porpoise, Penguin and Albatross are the names selected for the three gunboats building at Newport News, Va.

Ships which will hereafter be built for use on the Manchester canal are to have telescopic masts. The lower masts are of hollow steel, and the topmasts will be of wood and lowered into the former when the ship passes bridges.

Up to Oct. 1, 1893, the total contract pumping capacity of the Worthington company amounted to three billion, seventy-two million, nine hundred and ninety-five thousand gallons of water in twenty-four hours, and in addition some 60,000,000 gallons oil. These figures, taken from one of the company's catalogues, are enormous, and yet it must be remembered that for half a century the name of Worthington has been heard in connection with pumps in New York, and for many years past it has been as familiar in the same connection in Great Britain.

In a pocket manual for marine engineers, published recently in England and edited by A. E. Seaton, the eminent author on marine engineering, the adoption of feed-water heaters is in a general way highly recommended. "When space and weight allow of their adoption," says the author, "feed-heaters are without doubt a very desirable adjunct, since they keep a great deal of deposit out of the boilers, and—when the exhaust steam from the auxiliary engines can be used in them—save a considerable amount of heat that would otherwise be wasted."

The following item from an English exchange would indicate that the builders of the turret ships are meeting with more success among ship owners than are the makers of the whalebacks: "Messrs. Doxford & Sons, shipbuilders, Sunderland, and patentees of the turret ship, have recently secured orders for two or three vessels of that type of about 3,800 tons deadweight for Newcastle and Hartlepool owners. They have also received orders for one or more or this type from Messrs. Angier Bros. of London, but of 5,000 tons each on 20¼ feet, fitted with triple expansion engines of 26 inches, 42 inches and 68 inches by 42 inches, and very large boilers."

Production of Leading Clyde Yards.

As an indication of the extent of ship building in the principal yards of the Clyde, there is printed below a table showing the production of nine leading plants during the past three years:

PRODUCTION OF PRINCIPAL CLYDE SHIP BUILDING FIRMS.

BUILDERS.	1893.		1892.	1891.
	No.	Tons.	Tons.	Tons.
Russell & Co., Greenock	27	47,093	54,240	56,667
Stephen & Son, Linthouse	7	26,230	13,532	18,022
William Denny & Bros., Dumbarton	15	24,210	17,141	18,036
Thompson, Limited, Clydebank	6	21,852	18,530	7,540
Connell & Co., Scotstoun	9	20,060	23,753	21,170
Fairfield Company, Limited	5	17,252	17,505	12,793
Barclay, Curle & Co., Limited	9	14,268	12,431	17,931
A. McMillan & Son, Limited	9	13,153	16,518	11,594
D. and W. Henderson & Co.	8	10,723	8,718	16,378

Wood Protected Bottoms.

Editor MARINE REVIEW: Relative to the question of a higher class for metal ves-els with sheathed bottoms, which was mooted in your last number, it may be stated that Inland Lloyds' register always credited "sheathing" in the column of "remarks," in order that underwriters might consider the safety which was thus given when writing their policies. The new register now making by the Shipmasters' Association of New York will follow the practice of the Inland Lloyds' in respect to credits of all kinds. If a suggestion is in order, one might be made to the effect that the insurance tariff when next formulated contain a provision for rebate on account of sheathing metal bottoms, as the best way to bring about its general adoption. WM. W. BATES.

Triple vs. Compound Engines.

In practice it is found that a compound engine using steam of 140 pounds pressure shows very little economy over a similar engine using 90 pounds steam; whilst a triple engine using 140 pounds steam shows even a greater economy than is theoretically due to the increased pressure—owing, no doubt, chiefly to the diminished range of temperature in each cylinder. The actual amount of fuel saved by using a modern triple engine, working at 160 pounds pressure, in place of a compound engine using, say, 75 pounds steam, is nearly 25 per cent.—From a recent work by A. E. Seaton.

1894.

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J. M. JONES & CO.

Insurance and Vessel Agents.

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SELLING VESSEL PROPERTY A SPECIALTY.

☞ This is only a partial list of what we have for sale.

☞ Select Numbers and send to us, and we will forward names of what we think will suit.

FREIGHT STEAMERS.

No.	Length.	Breadth.	Depth.	Tons.	Built.	Rebuilt.	Class.	Grain Capacity.	Lumber Capacity.	Ore Capacity.	Coal Capacity.	Loaded Draft.	Size of Engine.	Size of Boiler.	Steam Allowed.	Price.
1	239	41-6	20	1030	1890	.....	A1*	80,000	.....	2,200	2,500	15	F.A.C. 27x50x40	.....	.....	$95,000
2	231-8	38	13-6	1169	85	.....	A1*	70,000	.....	1,800	2,000	14	F.A.C. 27x44x40	.....	100	80,000
3	200	35	13-3	641	90	.....	A1*	48,000	1000	1,400	1,500	13½	F.A.C. 22x42x40	9x17	120	68,000
4	189	35	13	929	89	.....	A1*	50,000	800	1,400	1,500	15½	F.A.C. 26x46x40	.....	.....	65,000
5	189	35	13	.....	94	.....	A1*	.....	900	.....	1,500	13	F.A.C. 20x40x36	10½x15	125	65,000
6	190	37	12	.....	.....	.....	A1½*	56,000	.....	1,500	1,600	15	F.A.C. 20x40x36	17x8	90	50,000
7	201	34-5	14-6	948	82	89	A1½	42,000	700	1,300	1,300	13	S.C. 20x36x36	9x15	110	35,000
8	181	32-6	14	566	85	....	A1½	.....	700	.....	.....	12	S.C. 16x32x26	8½x12	125	34,000
9	160	33-6	13	428	91	.....	A1	.....	700	.....	.....	13½	S.C. 20x36x36	9x14	100	35,000
10	166	32	19-8	654	84	D.D.	A1*	54,000	.....	1,000	1,100	13½	S.C. 26x36x40	New	....	35,000
11	213	31-6	12-4	985	73	90	A2½	52,000	.....	1,300	1,375	15½	H.P. 27½x32	9½x17	86	35,000
12	186	32	11	829	72	90	A2	40,000	.....	1,125	1,200	15	L.P. 24x30	8½x16	90	22,000
13	143-5	23-6	10-3	325	81	88	A2	.....	475	.....	.....	11½	H.P. 20½x24	7x13	120	22,000
14	131	28-6	9-9	222	84	93	A2	.....	350	.....	600	10	S.C. 19x38x32	8½x15	135	18,000
15	131	26	10-8	213	74	90	A2	.....	300	.....	$50	12	S.C. 19x38x32	8½x15	135	18,000
16	150	30	10	312	92	....	A2½	.....	450	.....	950	9½	H.P. 14x15	5½x11	140	15,000
17	130-4	24-8	9	140	73	93	A2½	.....	275	.....	500	10	H.P. 22x24	.....	100	13,000
18	116	24	9-6	132	80	91	A2½	.....	220	.....	325	9½	S.C. 14x26x22	6½x14	100	11,000
19	106	23	7	97	80	....	A2½	.....	200	.....	300	8½	H.P. 16x18	6x12	100	8,000
20	90	22	6	62	89	....	.....	.....	75	.....	125	6½	H.P. D. 10x12	4½x9	115	6,000
21	81	16	6	58	86	....	A2½	.....	50	.....	100	7	H.P. 12½x14	5½x9	100	4,000
22	69	17	5	39	80	....	.....	.....	50	.....	100	6½	H.P. 12x15	9x6½	80	3,000
	172	38-9	12-6	598	89	....	A1*	Package freight				13½	F.A.C. 19x36x30	9x15	125	50,000

EXPLANATIONS—S. C., Steeple Compound; F. & A. C., Fore and Aft Compound; Cond., Condensing; H. P., High Pressure; L. P., Low Pressure.

PASSENGER STEAMERS and YACHTS.

No	Length.	Breadth.	Depth.	Tonnage.	Built.	Rebuilt.	Class.	No. Pass.	State Rooms.	Loaded Draft.	Size of Engine.	Size of Boiler	Steam Allowed.	Price.
1	126	26	9½	293	1881	1889	A2	300	16	11	H. P. 22x24	7½x14	90	$18,000
2	125	26	9½	351	1879	1892	A2	400	15	11	L. P. 30x30	Iron.	77	16,000
3	108	21-8	8½	126	1889	....	A2	250	14	8½	H. P. 18x20	7½x12	110	15,000
4	110	27	9	170	1878	1894	A2	400	11	10½	C. 14x24x22	8½x14	90	13,000
5	104	23	8½	144	1881	1892	A2	.....	.....	9½	H. P. 18x20	14x6½	95	10,500
6	93	20	8½	115	1891	....	A1	.....	.....	8½	H. P. 16x18	6x12	120	8,000
7	87	17½	7	49	1879	....	A1½	150	.....	8½	H. P. 14x16	.....	100	8,500
8	73	17	6	68	1872	1892	A2½	Ferry	boat.	7	H. P. 17x19	.....	.....	5,000
9	86	14	5	22	1888	..	Ya't	75	6	6	F.a.c 10x18x12	4½x8½	125	10,500
10	68	11	4½	.....	1889	....	Ya't	Speed	14 mls	5	F.a.c 15x8x9	.....	120	2,600
11	38	8	3½	5	1896	1892	Ya't	.....	.....	3½	H. P. 6x6	5½x3	133	800

TUGS.

No	Length.	Breadth.	Depth.	Tons.	Built.	Rebuilt.	Class.	Loaded Draft.	Size of Engine.	Size of Boiler	Steam Allowed.	Price
1	114	20	7	111	61	84	A2½	....	S. C. 20x 40x30	16x9	110	$10,000
2	98	19	9	42	92	....	A1	10	C-S.C. 9x15x12	6x11	120	10,500
3	112	20-2	10	111	62	88	B1	11	S. C. 22x 40x30	8x16	85	8,000
4	68	17½	6	22	88	90	A2	8	H. P. 18x18	New	125	7,000
5	61	15½	7½	19	91	.....	A1	8	H. P. 16x16	6x11	125	5,500
6	55	16½	8	17	81	.....	A2	9	H. P. 17x18	12½x6	140	5,000
7	65	13½	5½	24	90	93	A1	6	H. P. 12x14	5½x9½	125	4,000
8	71	14	8	22	69	90	B1	8	H. P. 18x20	10x5½	80	4,000
9	56½	15-7	7-4	14	83	....	A2	8	H. P. 16x16	New	120	4,000
10	45	12	6	6	77	90	A2	7	H. P. 12x12	New	150	3,800
11	45	11	8	8	78	91	A2	6	H. P. 12x12	5x9	125	2,500
12	32	9	5	26	73	90	A2½	6	H. P 11x12	4x7	125	1,500

SCHOONERS.

No	Length.	Breadth.	Depth.	Tons.	Built.	Rebuilt.	Class.	Grain Capacity.	Lumber.	Ore.	Coal.	Loaded Draft.	Price.
1	170	34	11	533	93	....	A1*	.....	800	.....	1100	11	$32,000
2	189	32	13 4	616	73	88	A2	45,000	700	1200	1200	13½	18,000
3	168	32	18	693	72	89	A2	45,000	.....	1150	1200	13½	15,000
4	173½	30-6	13½	519	67	86	A2	38,000	650	1000	1100	14	10,000
5	160	30½	12-5	417	62	87	A2	29,500	500	780	850	13½	7,000
6	140	26-2	11	315	69	87	A2	22,000	325	600	700	11½	5,500
7	140	26	11	304	73	87	A2½	22,000	340	600	700	12	5,000
8	127	25-2	9-6	253	73	89	A2	.....	310	.....	.....	9½	5,000
9	122	28	9	260	66	93	A2	16,000	275	.....	450	10	4,500
10	140	26	11	315	66	86	A2½	22,000	325	600	700	11	4,500
11	104	24	8	142	75	86	A2	10,000	160	.....	320	8½	2,000
12	103½	23½	7½	138	67	84	B1	.....	160	.....	325	8½	2,000

TOW BARGES.

No	Length.	Breadth.	Depth.	Tons.	Built.	Rebuilt.	Class.	Grain Capacity.	Lumber	Ore.	Coal.	Loaded Draft.	Price.
1	207	34-7	16-6	916	90	.....	A1*	70,000	.....	.....	2000	15	$40,000
2	147	30	10½	354	92	.....	A1	.....	350	.....	900	11½	18,000
3	177	34-9	14	621	81	.....	A2	42,000	800	1250	1800	14	16,500
4	181	33	15	742	82	89	A2	50,000	700	1200	1500	15	16,000
5	172	32	13-4	582	69	89	A2	.....	800	1000	1100	13	15,000
6	178	33-3	12½	543	73	88	A2	40,000	800	1050	1200	13	10,500
7	166	32-6	11-6	446	70	89	A2	.....	650	800	900	12	10,000
8	150	29	12	353	66	89	A2	25,000	325	700	800	12½	9,000
9	160	31-4	12-4	403	62	87	A2½	30,000	360	700	800	12½	8,000
10	138	26	11	315	66	86	A2½	23,000	280	600	700	11½	4,500
11	137	26 4	10-8	257	75	90	A2½	20,000	350	.....	600	11½	3,600
12	138	26	11	310	74	87	B1½	.....	350	.....	650	11½	2,500
13	136	25	9	267	67	87	B1½	.....	400	.....	550	10	2,000

LIGHTERS.

No.	Length.	Breadth.	Depth.	Built.	Rebuilt.	Class	Lumber Capacity	Coal Capacity	Loaded Draft.	Price
1	160	26	10	1883	....	....	800	1200	10	$2,500
2	98	26	6	.....	1891	....	.....	.....	7	2,000
3	115	26	6	1878	1887	....	.....	.....	7	2,000
4	110	25	6	.....	.....	....	100	180	8	1,600
5	114	22½	7	1889	1893	B2	200	340	8	1,500
6	120	24	6	....	....	....	.....	.....	8	900
7	55	20	6	.....	.....	.....	.....	.....	....	400

Miscellaneous.

Boilers, Engines, Dredges, Dump Scows, Wrecking Pumps, Anchors, Chains, etc.

Notwithstanding the numerous pictorial publications descriptive of the World's Columbian Exposition that have appeared in all parts of the country since the opening of the fair, the "Book of the Fair," being published by the Bancroft Company, Chicago, is undoubtedly meeting with the largest sale, although it is not marketed through agents. Eleven numbers of this work have now been published—they sell at $1 each—and each succeeding number is better than the one preceding it.

Some Comment on the Use of Soapsuds.

A writer in one of the New York journals adds a little amusing comment to a report eminating from the hydrographic office about the use of soapsuds in heavy weather by the German ship Scandia. He says:

"Soapsuds are a good deal cheaper than oil, lie heavier on the water, it is claimed, and soap occupies less space on board ship. The value of the idea puts us in mind of the old story about the Irish woman who was in danger of being burned to death in her top-story tenement, when her presence of mind suggested the use of soap. So she held a cake to the window for the firemen to play their hose upon it, 'and begorra!' said she, 'I jist came down on the lather!' Of course according to the old adage, 'while there's life there's soap,' and we presume the old adage may now be transposed to read, 'while there's soap there's a chance for life.' But, joking aside, the discovery should prove of particular value on the great lakes and all fresh water bodies where a lather can be readily raised by the water through which the vessel sails, with any ordinary soap. For use on the ocean, we presume that either salt water soap or a supply of fresh water to prepare soapsuds on board, as was done by the officers of the Scandia, will be necessary. It is not essential that the article used be Colgate's Cashmere Boquet or Pears' 'Good Morning' variety. For ordinary merchantmen in a gale, common soft soap, which often proves so valuable, metaphorically, in business ashore, will answer every purpose. The paradox of the thing is that with the use of soap the seas will not make such a clean sweep of the vessel."

Trade Notes.

Dunn & Elliot of Thomastown, Maine, will build a 1,000 ton four masted schooner.

A new volume of the Rudder, the neat yachting journal of Watertown, N. Y., begins with the current issue, and there are signs of progress in every page of it.

The revised edition of the pamphlet on "Graphite as a Lubricant," spoken of some time ago in the REVIEW, is now being distributed by the Joseph Dixon Crucible Company of Jersey City, N. J. A copy free of charge will be sent upon application to anyone interested in the subject of lubrication.

The following named firms and individuals had patent tubular boilers passed on and approved last week by the board of supervising inspectors of steam vessels, at their annual meeting in Washington, D. C.: D. Y. Williams, South Haven, Mich.; L. D. Davis, Erie, Pa.; Robert A. Zell, Baltimore, Md.; John J. Brown, Baltimore, Md.; G. E. Dow, Seattle, Wash.; Brownell & Co., Dayton, O.; Henry Haenel, St. Augustine, Fla.; John H. Lutz, Michigan City, Ind.; John A. Flagiole, Bay City, Mich.; W. W. Moore, Eugene, Ore.; J. B. Jardine, San Francisco Cal.; D. Roussean, New York City; Lewis Saunders, Lawrence, Mass.; E. P. Clark, New York City; E. W. Gibbs, Elmira, N. Y.; Burnham and Dugger Railroad Appliance Company, for Christiana marine boiler, Boston, Mass.

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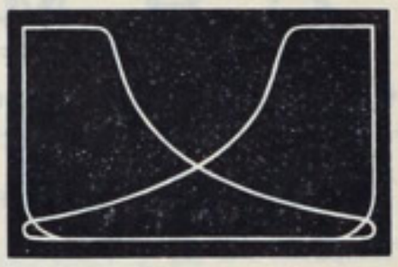

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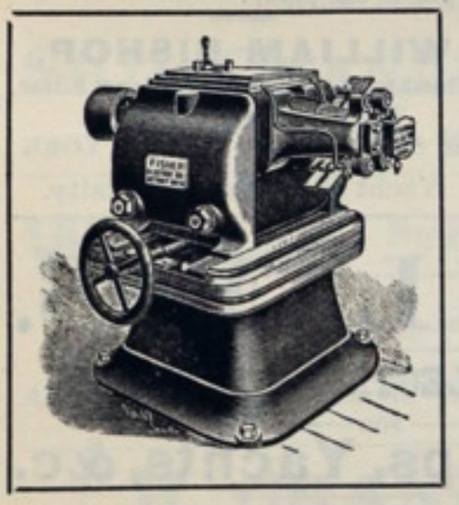

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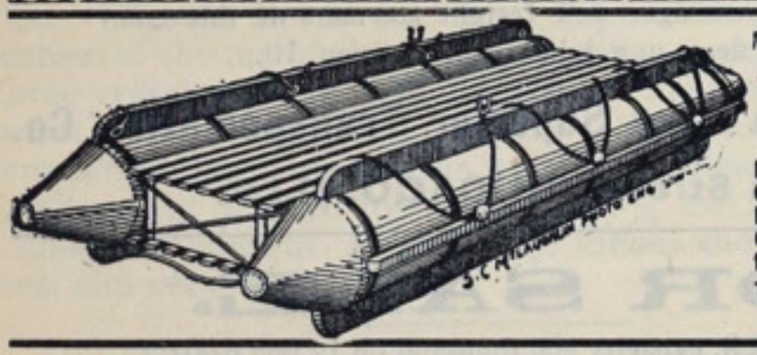

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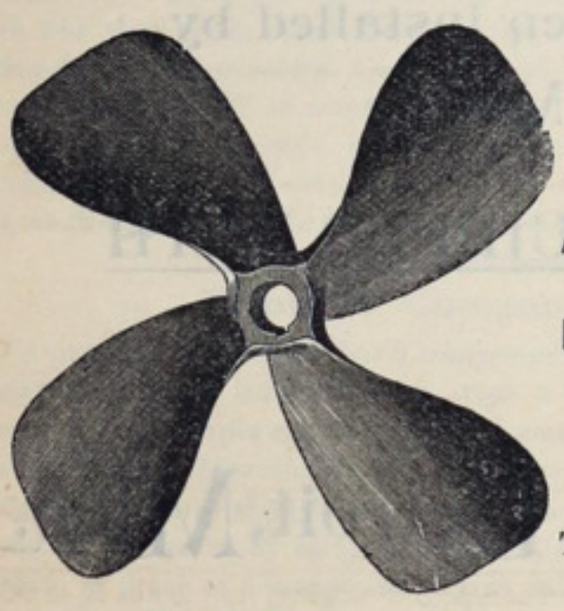

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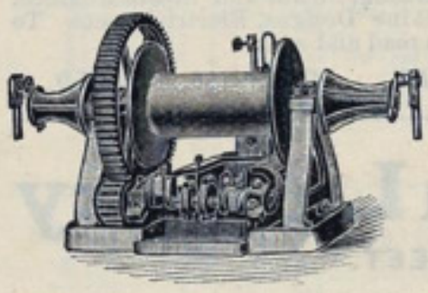

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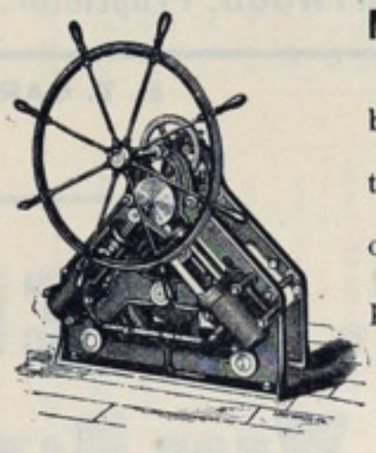

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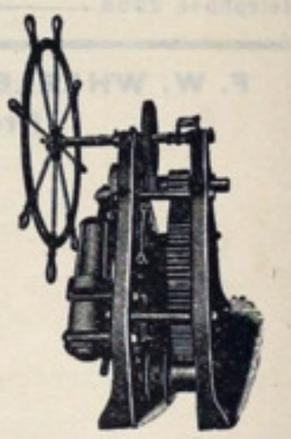

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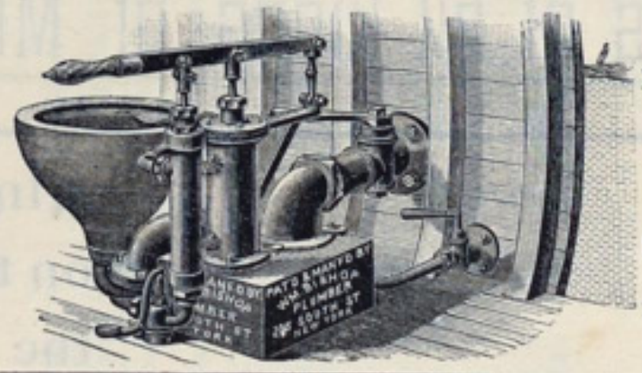

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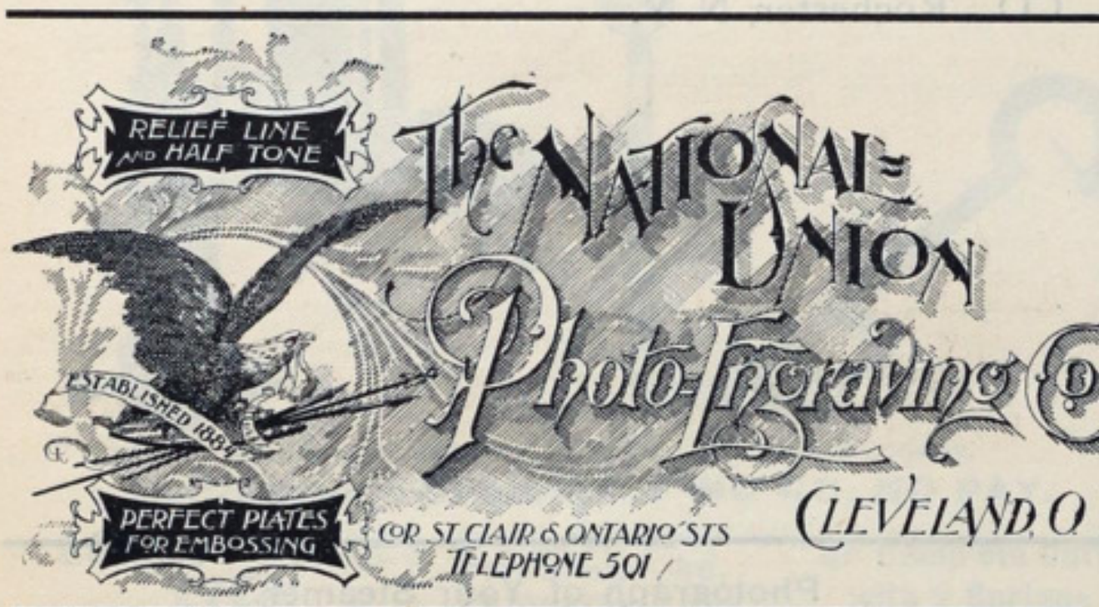

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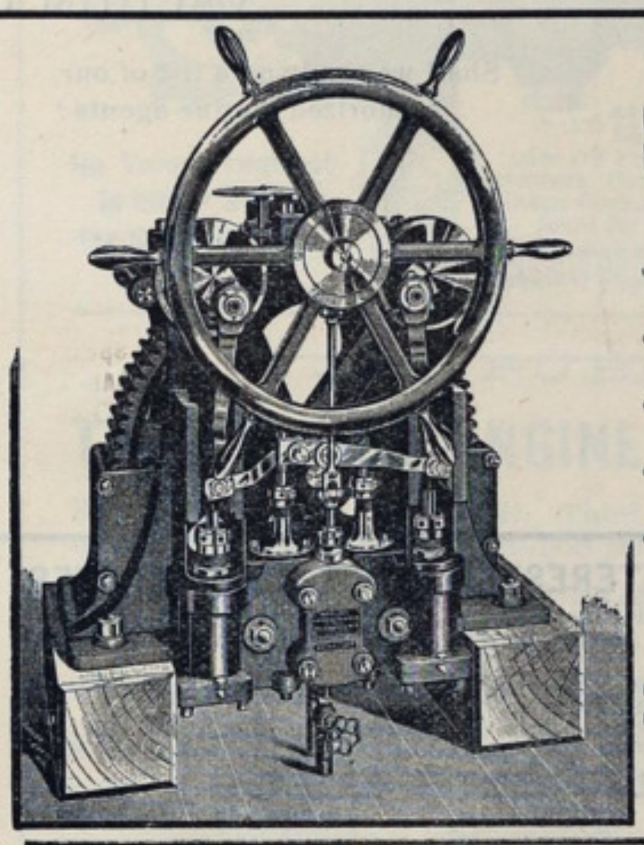

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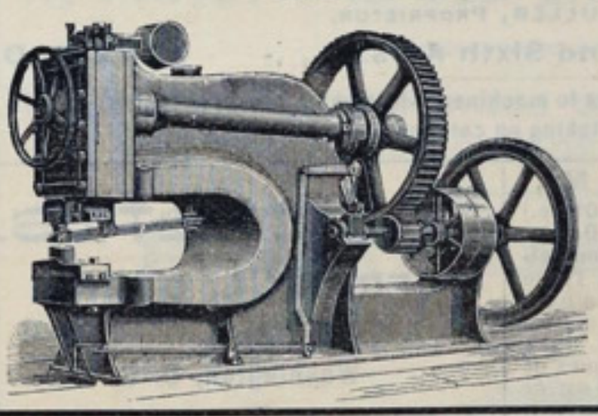

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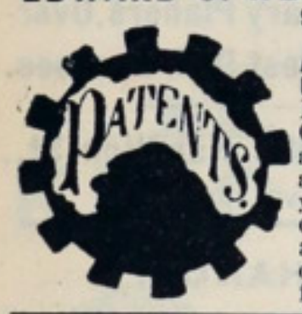

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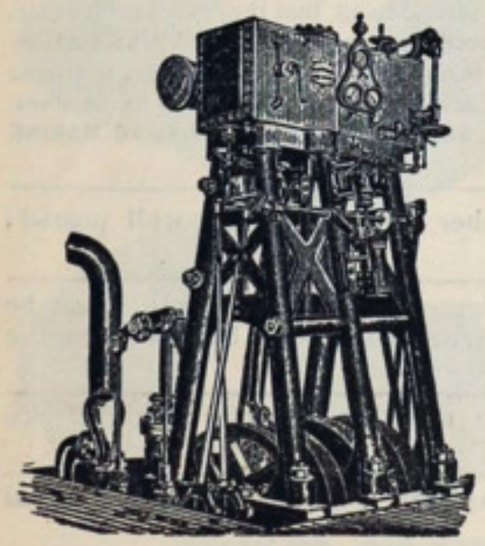

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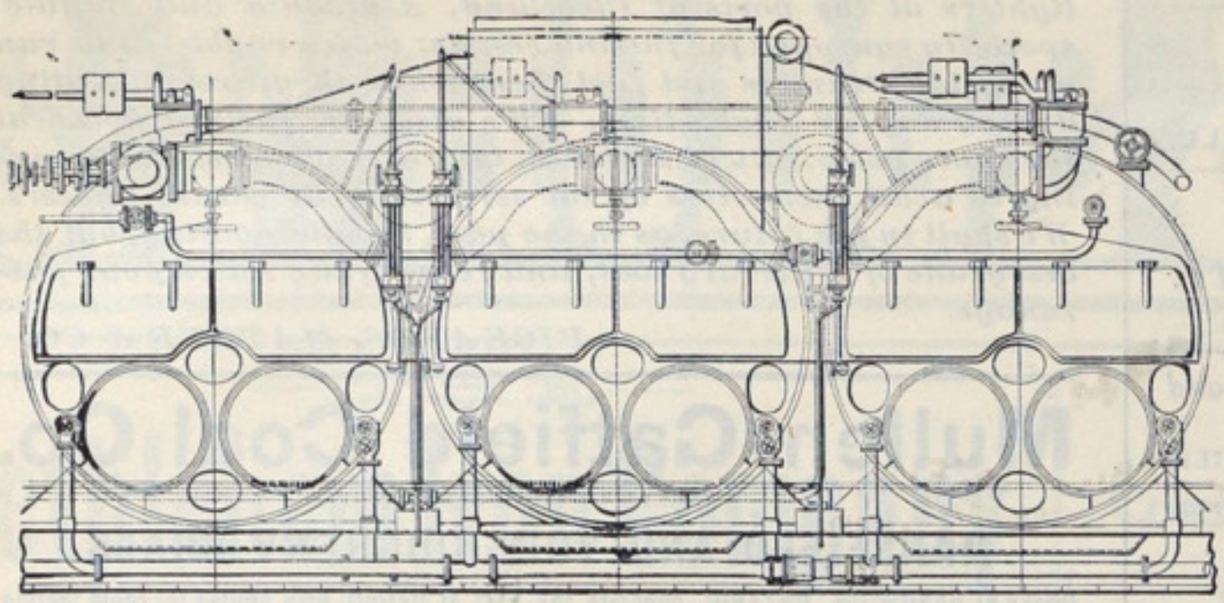

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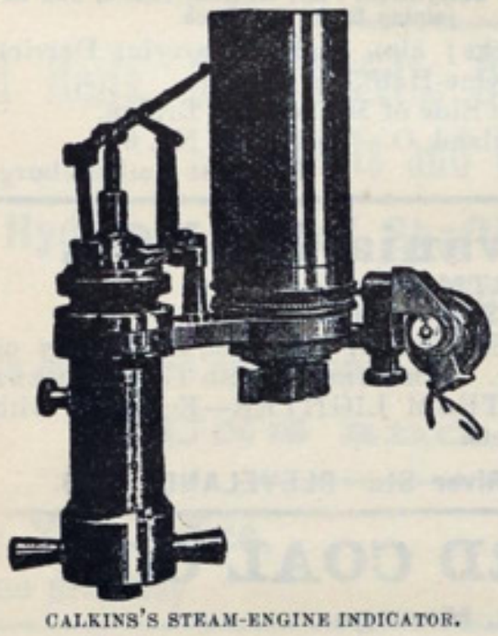

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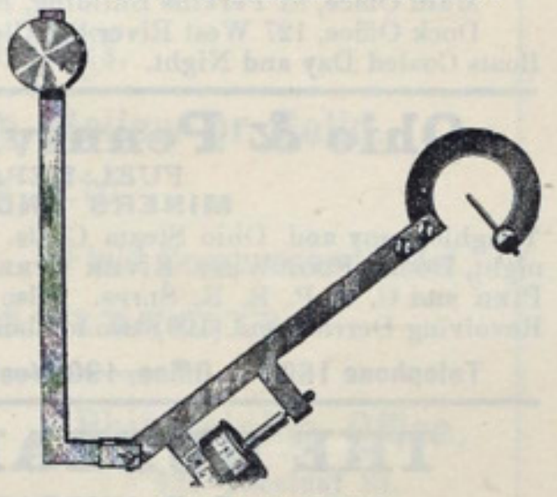

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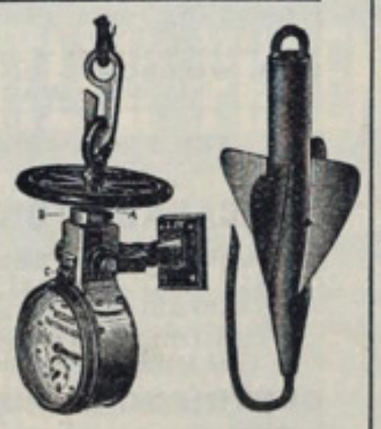

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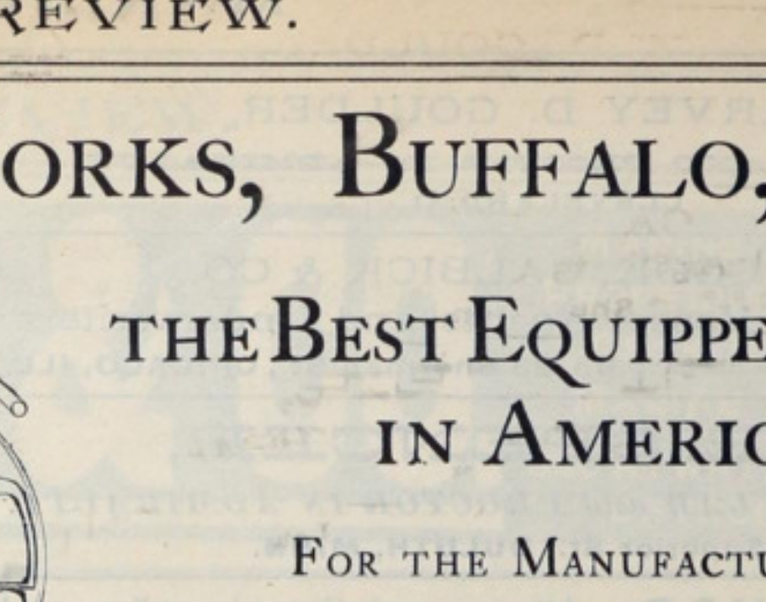

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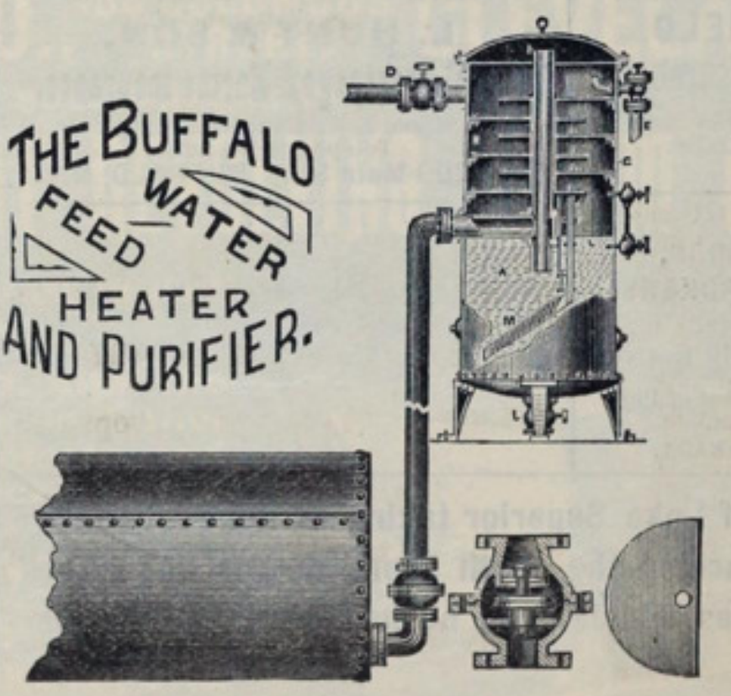

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C.—Feed pipe to boiler.
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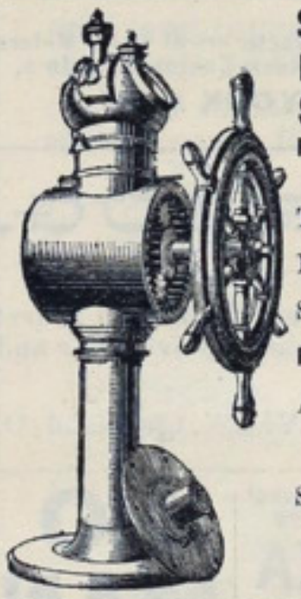

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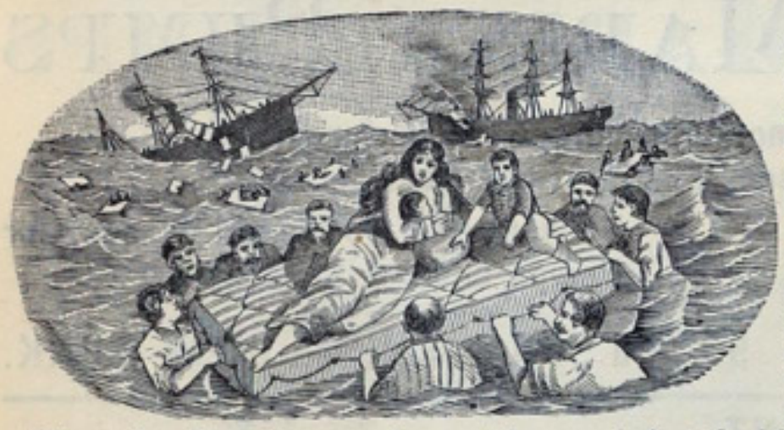

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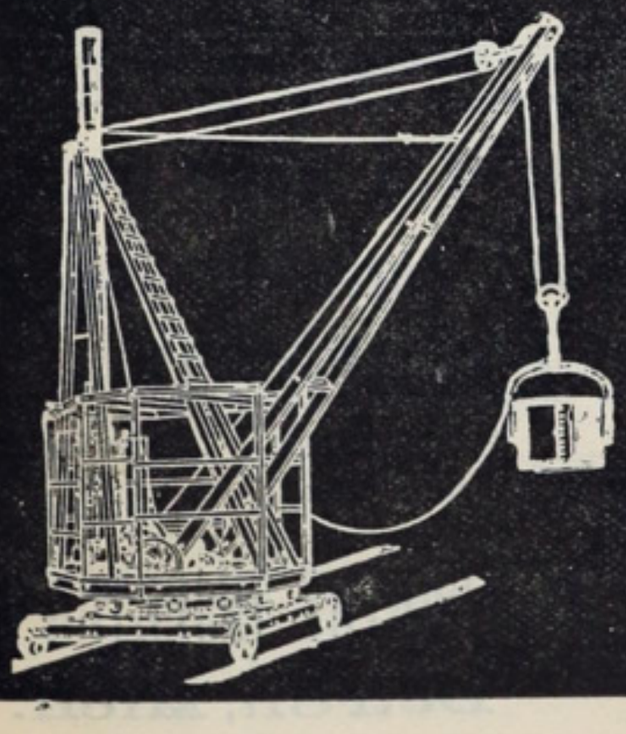

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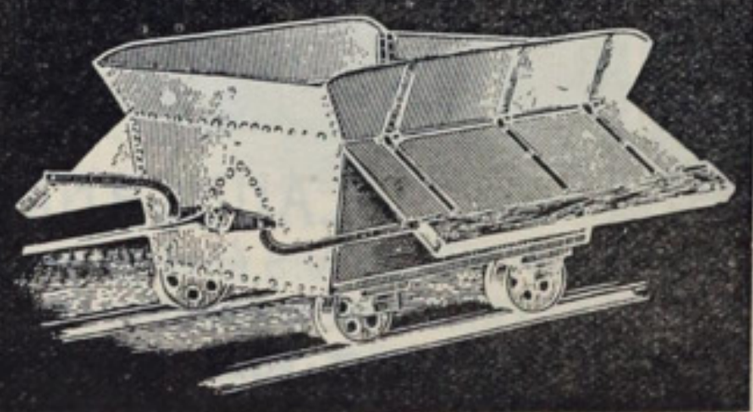

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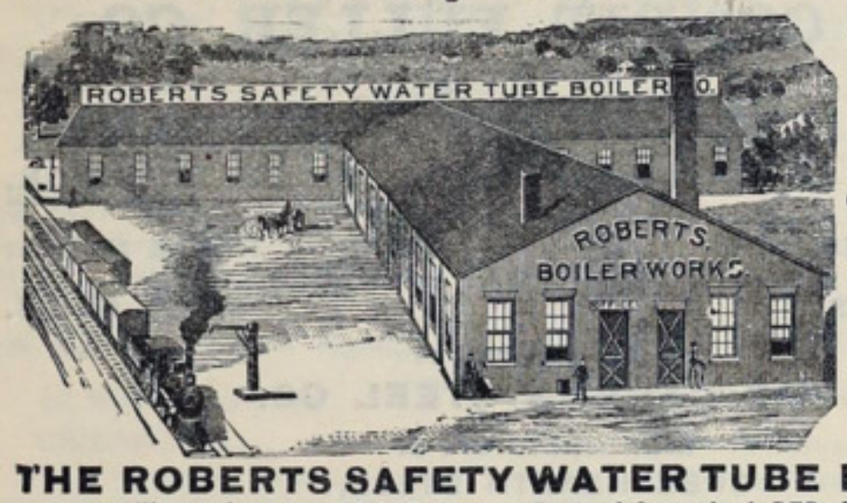

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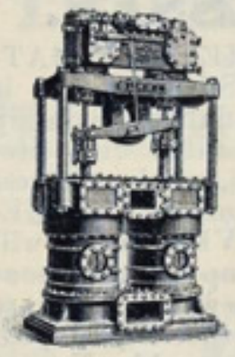

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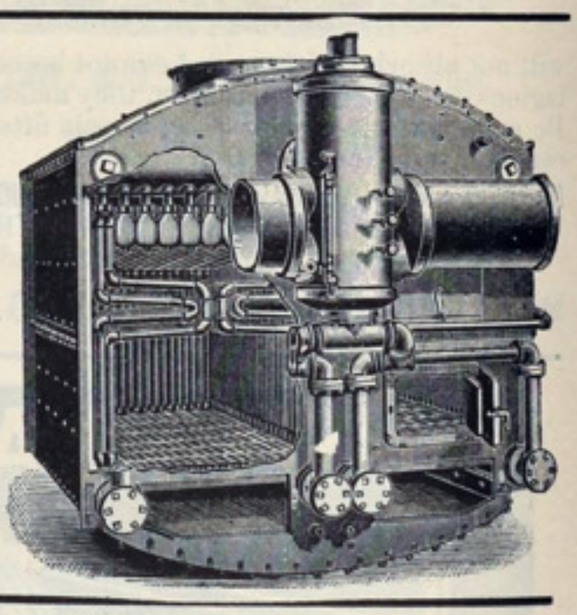

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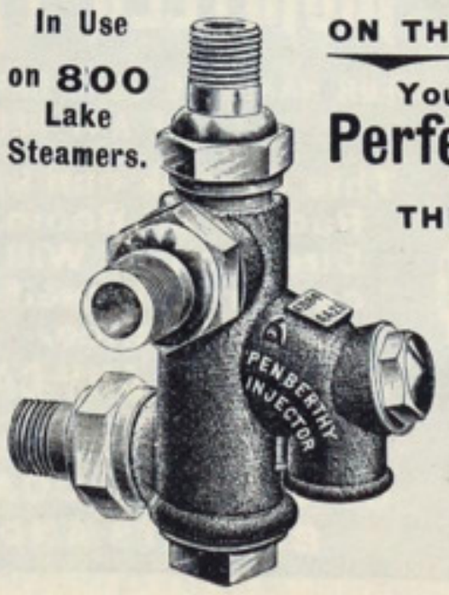

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